XCE041701

INDUS UNIVERSITY

Enrollment No: _____

INDUS UNIVERSITY

ITE//IMS/ISHLS

Constituent Institutes of Indus University

Semester:	IV	Branch:	CE/CS/IT
End Semester Examination (MAY 2022)			
Subject Code:	CE0417	Subject Name:	Data Structure & Algorithms
Date:	11/5/2022	Time:	10:00am To 11:30am
Day:	Wednesday	Total Marks:	40

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 Define Data Structure. Explain Primitive and Non-Primitive data structure in detail. 04

Q.2 Design an algorithm/ pseudocode for Bubble sort. Illustrate the working of bubble sort on the following array: 54,26,93,17,77,31,44,55,20 06

OR

What is Queue? Write insert and delete algorithm in simple queue. 06

Q.3 Explain PUSH and POP Stack operations in detail. 04

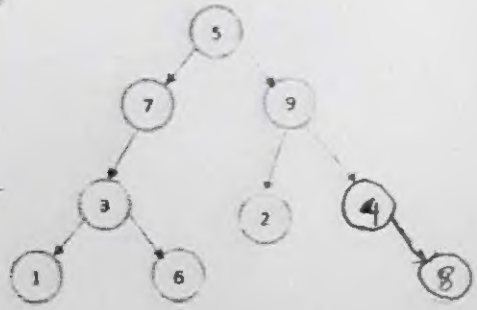
Q.4 a) Define Linked list. Compare Linked list with array. 04

b) Compare singly, doubly and circular linked list 02

OR

Define Graph data structure. Explain Depth First Search(DFS) Traversal with example. 06

Q.5 Write down the Inorder, Preorder and Postorder traversal of the following binary tree 04



Q.6 What is a Binary Search Tree (BST)? Show the structure of the binary search tree after adding each of the following values in that order: 10, 25, 2, 4, 7, 13, 11, 22. What is the height of the created binary search tree? 06

OR

Q.6 Given the values {2341, 4234, 2839, 430, 22, 397,'3920} a hash table of size 7 and a hash function h(x) = x mod 7, show the resulting table after inserting the values in the given order with each of the following collision strategies. 06

(i) separate chaining

(ii) linear probing

Q.7 Explain Sequential file organizations and list its advantages and disadvantages. 04

Q.8 Define collision in hashing? Discuss any two collision resolution techniques. 06

OR

Compare Linear search and Binary search. Write a C program to perform searching operations using binary search. 06

All the Best